Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Best evidence statement (BESt). Recruitment maneuvers compared to chest physiotherapy for the mechanically ventilated patient.

Bibliographic Source(s)

Cincinnati Children's Hospital Medical Center. Best evidence statement (BESt). Recruitment maneuvers compared to chest physiotherapy for the mechanically ventilated patient. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2011 Aug 17. 4 p. [6 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

There is insufficient evidence and lack of consensus to make a recommendation for using recruitment maneuvers versus chest physiotherapy for treatment of atelectasis with the mechanically ventilated pediatric patient.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Atelectasis with mechanical ventilation

Guideline Category

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Pediatrics

Pulmonary Medicine

Intended Users

Advanced Practice Nurses

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To evaluate, among infants and children (newborn to 18 years) who are mechanically ventilated and have atelectasis, if the use of recruitment maneuvers versus chest physiotherapy leads to earlier resolution of atelectasis

Target Population

Infants and children ages newborn to 18 years who are mechanically ventilated with documented atelectasis

Exclusion criteria include patients with increased intracranial pressure, pneumothorax and hemodynamic instability.

Interventions and Practices Considered

Recruitment maneuvers versus chest physiotherapy in infants and children who are mechanically ventilated and have atelectasis

Major Outcomes Considered

Resolution rate of atelectasis

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Search Strategy

Search terms used: Chest physiotherapy, atelectasis, recruitment maneuvers, pediatrics, mechanical ventilation, percussion

Date range: 2000-2011

Data bases used: Medline/PubMed, CINAHL, Google Scholar

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Table of Evidence Levels

Quality Level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5 or 5a or 5b	Other: General review, expert opinion, case report, consensus report, or guideline

†a = good quality study; b = lesser quality study

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Table of Recommendation Strength

Strength	Definition
"Strongly recommended"	There is consensus that benefits clearly outweigh risks and burdens (or vice-versa for negative

Strength	Definition
"Recommended"	There is consensus that benefits are closely balanced with risks and burdens.
No recommendation made	There is a lack of consensus to direct development of a recommendation.

Dimensions: In determining the strength of a recommendation, the development group makes a considered judgment in a consensus process that incorporates critically appraised evidence, clinical experience, and other dimensions as listed below.

1. Grade of the body of evidence
2. Safety/harm
3. Health benefit to the patients (direct benefit)
4. Burden to patient of adherence to recommendation (cost, hassle, discomfort, pain, motivation, ability to adhere, time)
5. Cost-effectiveness to healthcare system (balance of cost/savings of resources, staff time, and supplies based on published studies or onsite analysis)
6. Directness (the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome])
7. Impact on morbidity/mortality or quality of life

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

Reviewed against quality criteria by 2 independent reviewers.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

Current evidence was found to be mostly expert opinion or descriptive studies, which was considered insufficient to make a recommendation.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Earlier resolution of atelectasis
- Interventions that result in a decrease in the intensive care unit length of stay and/or duration of mechanical ventilation could lead to significant reductions in total inpatient cost.

Potential Harms

- Risks and complications associated with chest physiotherapy are rare, but may include hypoxemia, increased intracranial pressure,

hypotension, pain/discomfort to ribs, cardiac arrhythmias and hemoptysis.
- Risks and complications associated with recruitment maneuvers may include transient hypotension, desaturation, barotrauma and arrhythmias.

Qualifying Statements

Qualifying Statements

Qualifying Statements

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 Aug 17

Guideline Developer(s)

Cincinnati Children's Hospital Medical Center - Hospital/Medical Center

Source(s) of Funding

Cincinnati Children's Hospital Medical Center

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

Group/Team Leader: Rhonda Schum, RRT, RT II, The Heart Institute

Other Group/Team Members: Tanya Scholl, RRT-NPS, BHS, RT III, Pediatric Intensive Care Unit; Tonie Perez, RRT-NPS, BHS, RRT III, Neonatal Intensive Care Unit

Support Personnel: Barbara Giambra, RN, MS, CPNP, Evidence-Based Practice Mentor, Center for Professional Excellence, Research and Evidence-Based Practice

Financial Disclosures/Conflicts of Interest

No financial conflicts of interest were found.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Cincinnati Children's Hospital Medical Center Web site .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

Availability of Companion Documents

The following are available:

- Judging the strength of a recommendation. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Jan. 1 p. Available from the Cincinnati Children's Hospital Medical Center Web site .
- Grading a body of evidence to answer a clinical question. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 1 p. Available from the Cincinnati Children's Hospital Medical Center Web site .
- Table of evidence levels. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Feb 29. 1 p. Available from the Cincinnati Children's Hospital Medical Center Web site .

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Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on January 4, 2012.

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